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EXAMINER

FORTUNA, JOSE A

ART UNIT

PAPER NUMBER

1731

DATE MAILED: 06/05/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/931,621

Applicant(s)

JASCHINSKI ET AL.

Examiner

José A Fortuna

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-45 is/are pending in the application.
- 4a) Of the above claim(s) 36-45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION***Election/Restrictions***

1. Applicant's election with traverse of group I in Paper No. 7 is acknowledged. The traversal is on the ground(s) that group I and II are linked as product process claims and that group III, claims 42-45, are capable of being used together, since the method of claim 22 encompasses the subject matter of claim 22. This is not found persuasive because: a) regarding the product by process claims of group II, this is only partially true, the only product related to the process claimed in claims 22-31, are claims 32-35, the other claims, i.e., claims 36-40, are drawn to a patentably distinct species, such as paper and the sub specie, the tissue; b) regarding claims 42-45, the method of making paper is a totally different area than the method of making the fibers and patentably distinct operation. Note also that claims 42-45 are also patentably distinct from the product of claims 32-40, since the paper can be made by a materially different process, such as by the air-laying technique.

The examiner agrees that the product by process should be examined together and therefore, claims 32-35 would be treated along with the elected group, claims 22-31.

The requirement is still deemed proper and is therefore made FINAL.

Claims 36-45 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 7.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 22-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nooy et al., in "Selective Oxidation of Primary Alcohols by Nitroxyl." or Heinze et al. in "Cellulose Derivatives. Modification, Characterization and Nanostructures," or Chang et al. in "Oxidation of primary alcohol groups of naturally occurring polysaccharides with 2,2,6,6-tetramethyl-1-piperidine" or Isogai et al., in "Preparation of polyuronic acid from cellulose by TEMPO-mediated oxidation."

All the above references teach the oxidation of cellulose fibers using TEMPO as a catalyst. All the above references teach also that the reaction of a polysaccharide, such as cellulose, is a 6 Carboxyl reaction, see for example Heinze et al, page 74. Isogai et al teach also the use of Kraft pulp and the formation of uronic acid moiety, see abstract, and the degree of polymerization, DP in Table I. Chang et al. teach the oxidation of cellulose, -cellulose with TEMPO and teaches that the reaction is at least 87% selective, i.e., predominant in the formation of Uronic acid moieties. Note that Chang et al. teach the cellulose is in a fibrous form; see page 828, line 5 under the Experimental heading. Note that the above references teach that both aldehydes and carboxylic acid groups are formed by the oxidation of cellulose. They also teach that oxidation can be controlled obtain the desired degree of oxidation, i.e., the reaction could be stopped to the desired aldehyde levels, see Nooy et al., pages 8024-8027. Nooy et al. also teach that if the reaction is done in an organic solvent then it stops at the aldehyde stage, see page 8027, lines 4-8. Therefore, reacting a cellulose pulp to the aldehyde levels as claimed would have been obvious to one of ordinary skill in the art as a simple optimization of a result effective variable.

Claims 22-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al., US Patent No. 5,698,688 in view of Nooy et al. in "Selective Oxidation of Primary Alcohols by Nitroxyl" or Heinze et al. in "Cellulose Derivatives. Modification, Characterization and Nanostructures, " or Chang et al. in "Oxidation of primary alcohol groups of naturally occurring polysaccharides with 2,2,6,6-tetramethyl-1-piperidine" or Isogai et al., in "Preparation of polyuronic acid from cellulose by TEMPO-mediated oxidation."

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Smith et al. teach a paper made with aldehyde modified fibers, see abstract. Smith et al. teach also that the aldehyde groups increase the temporary strength of the fibers, see abstract and teach the fluffing of the fibers, see column 9, line 62 through column 10, line 7, (see the use of the fibers for sanitary napkins, tampons, diapers, etc.). Even though Smith et al. are silent with respect to the number of moles of aldehyde in the fibers, Smith et al. teach that the presence of aldehyde groups is evidenced by an increase of wet strength of the paper formed from the modified fibers and that the degree of oxidation can be readily optimized for a given fiber weight to obtain desired degree of aldehyde groups in the fibers and that it would be desirable to avoid over oxidation so to control the formation of carboxylic acids groups in the fibers, see column 7, lines 8-20. Therefore, it is clear that optimizing the degree of aldehyde to the claimed degree would have been obvious to one of ordinary skill in the art, in order to optimize the strength of the fibers. Smith et al. fail to teach the use of nitroxyl radicals as claimed. However, Nooy et al., Heinze et al., Chang et al and Isogai et al. teach that primary and secondary alcohols, such as the one in cellulose can be oxidized to aldehyde and/or carboxylate depending on the reactions conditions and the substrate, see page 8023 and teach in page 8027, (of Nooy et al.), that using inorganic solvents without water or with low concentration of water the reaction stops at the aldehyde stage. All of the above secondary references teach that one of the advantages of using TEMPO or TEMPO derivatives is that the oxidation is highly selective, (almost all the C(6) primary alcohols are oxidized, see abstract of Isogai et al.) Therefore, the use of nitroxyl Radical containing compounds, such as TEMPO, to form aldehyde modified fibers such as the ones disclosed by Smith et al. would have been obvious to one of ordinary skill in the art in order to obtain the advantages discussed above, i.e., a more controlled-selective oxidation can be carried

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out. Also one of ordinary skill in the art would have reasonable expectation of success if Nitroxyl Radical containing compounds were used. One of ordinary skill in the art would find that increasing the aldehyde content of fibers using Nitroxyl Radical is another viable alternative, in view of Nooy et al. Heinze et al., Chang et al. and Isogai et al. teachings.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In the art of "Oxidized Cellulose fibrous materials."

US Patents No. 6,228,126, 6,368,456 and 6,562,195 teach a paper made with a cellulosic pulp, which has been oxidized with TEMPO and derivatives to aldehyde levels with the claimed range. However, these patents are not a prior art, see date(s). See also EPO 1 077 285 and EP 1 106 732.


US Patent 6,379,494 teach the oxidation of papermaking fibers with TEMPO. No a prior art, see date.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José A Fortuna whose telephone number is 703-305-7498. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7115 for regular communications and 703-305-7115 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0662.


Jose A Fortuna
Primary Examiner
Art Unit 1731

JAF
May 31, 2003